

REMARKS

Pursuant to the above-noted Office Action, claims 1, 12, 17 and 19 were rejected under 35 U.S.C. §102(e) given Wu et al. (U.S. Patent No. 6,850,481) ("Wu"). Claims 2-11, 13-16, 18, 20 and 24-27 were rejected under 35 U.S.C. §103(a) given Wu in review of Sarraf et al. (U.S. Patent No. 6,747,948) ("Sarraf"). Claims 21-23 were objected to as depending upon rejected base claims but were otherwise found to contain allowable subject matter. Claims 28 and 29 were allowed. The applicant thanks the Examiner for the indications of allowable subject matter and otherwise respectfully traverses these rejections and requests reconsideration.

Claims 1, 12, 17, and 19 were rejected under 35 U.S.C. §102(e) given Wu. Prior to discussing the merits of the Examiner's contentions it may be helpful to first briefly describe and characterize the Wu reference. FIG. 1 from Wu is reproduced below for the convenience of the reader.

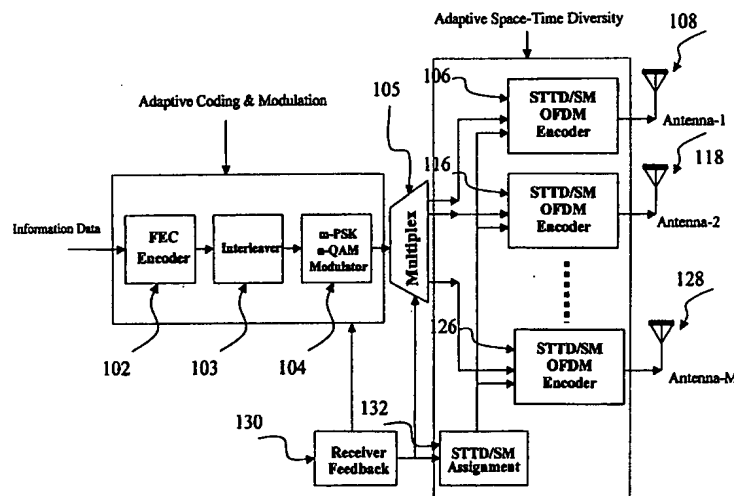


FIG. 1

Wu delivers a stream of raw data bits to an encoder/interleaver 102 that segments the stream into 1024 bit portions.^a This encoder/interleaver 102 then delivers the data segments to an adaptive quadrature amplitude modulation (QAM) encoder 104 that encodes the sub-segments of the bits and maps the sub-segments of bits into predetermined corresponding complex-value points in a corresponding symbol constellation.^b According to Wu's teachings, this adaptive QAM encoder 104 then sends the resultant sequence of sub-symbols to one of a space-time diversity and a spatial multiplexing OFDM encoder 106, 116, and 126. The latter encoders then assign the constellation points to respective subcarrier channels and deliver the sub-carriers to an IFFT circuit.^c

Wu therefore necessarily teaches that an encoder map adjacent bits in each sub-segment to so-called "sub-symbols" and that this mapping occurs *before* the distribution of such symbols to the provided antennas.

This approach is opposite to that set forth by the applicant. The present application teaches instead that adjacent bits are distributed over differing antennas and sub-carriers *before* any corresponding symbols are formed. Therefore, by the current application, symbol mapping occurs *after* Wu's multiplexer 105 instead of *before*. This constitutes an important difference. As taught by the applicant:

Encoded consecutive bits out of an encoder will have correlation among them due to the convolutional process of the encoder. Here, the bits (or symbols) are assigned onto different resources with minimal correlation to effectively combat the chances that a portion of the resources are not good due to multipath fading propagation. By interleaving the datastream components to effect minimal component proximity correlation as compared to the original order of the datastream in this way, data throughput becomes quite robust and significantly resistant to numerous kinds of channel disruptions.^d

^a Wu at column 4, lines 25 - 27.

^b Wu at column 4, lines 27 - 31.

^c Wu at column 4, lines 36 - 41.

^d Application at page 9, lines 11 - 18.

As amended, claim 1 now includes limitations directed to this point of distinction. In particular, claim 1 now provides in part as follows:

[I]nterleaving the bits of the datastream across a plurality of orthogonal frequency division multiplexed radio frequency transmitters, wherein each of the radio frequency transmitters transmits a plurality of radio frequency subcarriers, to provide interleaved bits wherein adjacent datastream bits are assigned to differing transmitters and differing subcarriers

As already noted above, Wu makes no suggestion or teaching that adjacent datastream bits be assigned to differing transmitters and differing subcarriers. Instead, Wu provides for converting his datastream bits into symbols before such antenna/subcarrier assignments occur. This, in turn, prevents Wu from assuring the same propagation robustness that the applicant's claimed approach offers.

The Sarraf reference contains nothing in its teachings or suggestions that correspond to such an approach. As a result, no combination of Sarraf with Wu, regarding of whether that combination is obvious or unobvious, will match the recitations of claim 1 as amended.

The applicant therefore respectfully submits that claim 1 may be passed to allowance.

Independent claims 12 and 17 now contain similar language as that which has been discussed above with respect to claim 1. Therefore, the same points as were raised above are applicable here as well. These points will not be repeated for the sake of brevity. The applicant respectfully submits that independent claims 12 and 17 may be passed to allowance.

Independent claim 19 has now been amended to include the subject matter of dependent claim 21 which has been previously acknowledged by the Examiner as containing allowable subject matter. Dependent claims 22 and 23 have each been amended to include the subject matter of original claim 19 such that claims 22 and 23 are now both presented in independent format. Both claims 22 and 23 were previously found to contain allowable subject matter. The applicant respectfully submits that independent claims 19, 22, and 23 may now be passed to allowance.

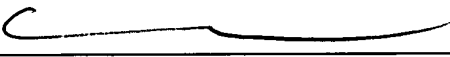
The remaining claims are ultimately dependent upon one of the claims discussed above and may be allowed on that basis. In addition, the applicant respectfully submits that these claims introduce additional content that, particularly when considered in context with

Application No. 10/035,027
Amendment dated February 1, 2006
Reply to Office Action of November 2, 2005

the claim or claims from which they depend, constitutes incremental patentable subject matter. While the applicant believes that other arguments are available to highlight the allowable subject matter presented in various of the dependent claims, the applicant also believes that the comments set forth herein regarding allowability of the independent claims are sufficiently compelling to warrant present exclusion of such additional points for the sake of brevity and expedited consideration.

The applicant respectfully submits that claims 1-8, 10-19, 22, 23, 28, and 29 may be passed to allowance.

Respectfully submitted,

By: 
Steven G. Parmelee
Registration No. 28,790

Date: 2-1-06

FITCH, EVEN, TABIN & FLANNERY
Suite 1600
120 South LaSalle
Chicago, Illinois 60603-3406
Telephone: (312) 577-7000
Facsimile: (312) 577-7007